

**CLAIMS**

We claim:

1. A coil assembly, comprising:  
at least one coil;  
5 at least one boss coupled to the at least one coil, wherein the at least one boss comprises at least two support sections.
2. The coil assembly of claim 1, wherein the coil comprises a metal or a metal alloy.
3. The coil assembly of claim 2, wherein the metal or metal alloy comprises a transition metal.
- 10 4. The coil assembly of claim 3, wherein the transition metal comprises tantalum or titanium.
5. The coil assembly of claim 1, wherein the at least one boss comprises more than 3 bosses.
6. The coil assembly of claim 5, wherein the at least one boss comprises more than 5  
15 bosses.
7. The coil assembly of claim 1, wherein the at least one boss comprises the same material as the coil.
8. The coil assembly of claim 1, wherein the at least one boss is coupled to the coil through a welded joint.
- 20 9. The coil assembly of claim 8, wherein the welded joint is formed by laser welding or e-beam welding.
10. The coil assembly of claim 1, wherein the at least one boss is molded to the coil as one continuous piece of material.
11. The coil assembly of claim 1, wherein the at least one boss comprises a first support  
25 section and a second support section and wherein the diameter of the first support section is different from the diameter of the second support section.
12. An ion depositing apparatus comprising the coil assembly of claim 1.

13. A sputtering chamber assembly comprising the ion depositing apparatus of claim 12.
14. A sputtering chamber assembly comprising the coil assembly of claim 1.
15. The coil assembly of claim 1, wherein the assembly comprises a heat transfer device.
- 5 16. The coil assembly of claim 15, wherein the heat transfer device comprises the at least one boss.
17. The coil assembly of claim 15, wherein the heat transfer device comprises the at least one boss and the coil.
18. The coil assembly of claim 1, wherein the coil comprises a thickness of less than about 0.2 inches.
- 10 19. The coil assembly of claim 18, wherein the coil comprises a thickness of less than about 0.13 inches.
20. A method of producing a coil assembly, comprises:  
providing a coil;  
providing at least one boss having at least two support sections; and  
15 coupling the at least one boss to the coil.
21. The method of claim 20, wherein the coil comprises a metal or a metal alloy.
22. The method of claim 21, wherein the metal or metal alloy comprises a transition metal.
23. The method of claim 22, wherein the transition metal comprises tantalum or  
20 titanium.
24. The method of claim 20, wherein the at least one boss comprises more than 3 bosses.
25. The method of claim 24, wherein the at least one boss comprises more than 5 bosses.
- 25 26. The method of claim 20, wherein the at least one boss comprises the same material as the coil.

27. The method of claim 20, wherein the at least one boss is coupled to the coil through a welded joint.
28. The method of claim 27, wherein the welded joint is formed by laser welding or e-beam welding.
- 5 29. The method of claim 20, wherein the at least one boss is molded to the coil as one continuous piece of material.
30. The method of claim 20, wherein the at least one boss comprises a first support section and a second support section and wherein the diameter of the first support section is different from the diameter of the second support section.
- 10 31. An ion depositing apparatus comprising the coil assembly produced by the method of claim 20.
32. A sputtering chamber assembly comprising the ion depositing apparatus of claim 31.
33. A sputtering chamber assembly comprising the coil assembly produced by the method of claim 20.
- 15 34. The method of claim 20, wherein the assembly comprises a heat transfer device.
35. The method of claim 34, wherein the heat transfer device comprises the at least one boss.
36. The method of claim 34, wherein the heat transfer device comprises the at least one boss and the coil.
- 20 37. The method of claim 20, wherein the coil comprises a thickness of less than about 0.2 inches.
38. The method of claim 37, wherein the coil comprises a thickness of less than about 0.13 inches.